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ponents, color of components, their spectra, the "hypothetical parallax,"—for the process of computing reference should be made to Mr. Gore's article,—and the most recent parallax of the star as determined by observation. Mention is also made of the publication in which the elements first appeared. The notes following the catalogue are very complete, and will be found very useful to those interested in this particular branch of astronomy.

In another paper read before the same society, Mr. Gore gives his observations of the variable star  $\mu$  Cephei. He finds that the variation of light for this star does not exceed half a magnitude, and is very irregular, the star sometimes remains for several months with little or no change in its brightness. Mr. Gore, in a third paper, gives the orbit of the double star 35  $\epsilon$  Comae Berenices. The magnitudes of the components are 5 and 7.8 respectively. He has found for this pair of stars a period of 228.4 years. He has computed the elements, and from this has derived the position angles and distance between the stars from Struve's first measurement in 1829 to Burnham's last measurement, made in 1891. The residuals between the computed and observed position angles are quite small, and with one or two exceptions the computed and observed distances compare very favorably.

#### EXPERIMENTAL DIPHThERIA.<sup>1</sup>

PROFESSOR WELCH and Dr. Flexner present a preliminary account of the results of their study of experimental diphtheria in guinea-pigs, rabbits, and kittens. They employed in their experiments pure cultures of the Klebs-Löffler diphtheritic bacillus, which they inoculated into the trachea and under the skin of these animals. The study which they made was directed particularly to the changes in the tissues produced by these organisms. Previous observers had not confirmed fully the results obtained by Oertel in his study of the alterations in the tissues in human diphtheria, and hence an important factor in the causation of the disease was missing. Drs. Welch and Flexner found that the lesions described by Oertel in human diphtheria are also present in the tissues of animals dead of the experimental disease, and in addition they describe a number of lesions which have not been found up to this time in the disease in human beings. They produced at the seat of inoculation a false membrane, in which the bacilli multiplied. The bacilli remain in the local process; they never invade the blood and tissues of either animal or man, and the general effects are caused, not by the bacilli themselves, but by a poison which they produce.

As in human diphtheria the place of entrance of the poison and the contiguous parts show the greatest destruction, so also in animals the seat of inoculation and the neighboring lymphatic glands exhibit the gravest changes; and, further, as is the case in human diphtheria, distant organs are affected, so is it in the experimental form of the disease. These observers found lesions in the seat of inoculation and adjacent tissues of the most intense nature, in the heart, lungs, liver, kidneys, adrenals, thyroid gland, the epithelium and lymphatic apparatus of the intestinal tract, and in all of the lymphatic glands of the body. The lesions described consist of death of cells, shown by the extensive nuclear fragmentation that has taken place, the affected cells being converted often into a substance resembling fibrin; a

hyaline death of cells which occurs in the liver and adrenals especially, and the production of intense fatty degeneration of the muscle of the heart, the epithelium of the kidneys and liver. Hence, a valuable link is added to the chain of evidence that the cause of human diphtheria is a specific organism—the Klebs-Löffler diphtheritic bacillus.

#### NOTES AND NEWS.

A KIND of artificial honey which has lately been produced seems likely to become a formidable rival of natural honey. It is called "sugar honey," and consists of water, sugar, a small proportion of mineral salts, and a free acid; and the taste and smell resemble those of the genuine article. Herr T. Weigle brought the subject before a recent meeting of the Bavarian Association of the Representatives of Applied Chemistry, and there is a paragraph about it in a recent number of the *Board of Trade Journal*.

—It is stated in *Nature* that a cat born with only two legs (the fore-legs being absent from the shoulder-blades) has been recently described by Professor Leon of Jassy (Naturw. Rundsch.). It is healthy, and goes about easily, the body in normal position. When startled, or watching anything, it raises itself to the attitude of a kangaroo, using the tail as a support. This animal has twice borne kittens, in both cases two, one of which had four feet, the other only two.

—Hysteria in men is apparently not rare in other countries, but in England, according to the *British Medical Journal*, it is, relatively speaking, very uncommon. Not many years ago a Russian physician observed that true hysterical fits were common among young Circassian men, and the disease might reasonably be suspected to prevail where men of an imaginative and impressionable stock predominate. Judging by the evidence of French medical publications, Frenchmen are far more subject to hysteria in adult life than Englishmen. Occasionally certain cases recorded in French medical newspapers must cause us to reflect; are such cases hysterical at all, or are certain nervous affections common in England really forms of hysteria? The doctrine that hypochondria is in males the homologue of hysteria, must be accepted by the French on the evidence of what prevails in England. For hypochondria, low spirits, or "spleen," is proverbially common there, and the French hold exaggerated opinions on the subject. In a more excitable race, more acute nervous symptoms might be expected.

—Rats at Aden appear to have a vigorous appetite, and to adopt remarkable ways of gratifying it. Captain R. Light, writing on the subject from Aden to the *Journal of the Bombay Natural History Society* (from which *Nature* quotes), says the rats in his house—which is overrun with them—demolish skins, braces, whips, etc.; and one night he awoke, feeling a rat gnawing at his toes. This happened in spite of a dog (a good ratter) being in the room. Captain Light was lately watching his pony being shod, and noticed the hoof apparently cut away all round the coronet, wherever it was soft. He accused the "nalband" of doing this in addition to the usual rasping of the hoof to suit the shoe. The "syce" said that the rats had done it, and that they came at night and ate away not only the pony's hoofs but those of the goat and kid, and that these animals were greatly tormented by the rats. Captain Light examined the hoofs, and found beyond doubt that such was the case, the marks of the teeth being plain; moreover, he found that the horns of the kid, which had been about half an inch high, were eaten flush with the head. Next morning, too, a large rat was discovered in the bedding under the horse. It had evidently been killed by a kick from him.

—The mareograph in the harbor of Pola, according to Lieut. Gratzl (Met. Zeitsch.), often shows, in addition to the ordinary tidal curve, certain more or less regular oscillations, generally with a period of about fifteen minutes (some with one of seven minutes). According to *Nature*, these appear to be of the nature of *seiches*, and to be caused by squalls, which drive water from the open sea into the partly inclosed basin of the harbor, where it rises as a wave, retires, rises again to a less height (as only part of

<sup>1</sup> The Histological Changes in Experimental Diphtheria. Preliminary communication. By William H. Welch, M.D., professor of pathology and Simon Flexner, M.D., fellow in pathology. The Johns Hospital Bulletin, No. 15, August, 1891.